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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,023	01/30/2002	Shyh-Ming Chang	ERSO83-002B	8525

28112 7590 04/24/2003

GEORGE O. SAILE & ASSOCIATES
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POUGHKEEPSIE, NY 12603

EXAMINER

NGUYEN, DILINH P

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/061,023

Applicant(s)

CHANG ET AL.

Examiner

DiLinh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

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DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

In page 1, line 1, the phrase: "...this is a division of Patent Application serial number 08/239575..." is inconsistent with PTO records.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6249051.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 1-3 of U.S. Patent No. 6249051 do not disclose the composite bump is deformed when the connection is formed. However, it is well known in the art that the

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composite bump is deformed when the connection are formed. Therefore, claims 1-3 of U.S. Patent No. 6249051 do not necessary teach this limitation.

Claims 4-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 7 of U.S. Patent No. 5431328. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 1 and 7 of U.S. Patent No. 5431328 do not disclose the composite bump is deformed when the connection is formed. However, it is well known in the art that the composite bump is deformed when the connection are formed. Therefore, claims 1 and 7 of U.S. Patent No. 5431328 do not necessary teach this limitation.

Prior Art Rejection

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatada (U.S. Pat. 4749120) in view of Abe (JP 05335316) and further in view of R.E. Brown et al. (U.S. Pat. 3809625).

Hatada discloses a semiconductor device (cover fig., column 3, lines 25 et seq.) comprising :

an integrated circuit element 10 having input/output pads 12;

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a substrate 18 having i/o pads 20; and

a plurality of physical and electrical connections 14 between the IC element i/o pads and the substrate i/o pads wherein each the connection includes a composite bump, and wherein the composite bump is deformed when the connection is formed (cover fig., column 3, lines 55-60).

Hatada fails to disclose the bump comprised of a polymer body.

Abe disclose a semiconductor device comprising a bump electrode 6 is formed by conductive polymer (cover fig., abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hatada to prevent generation of cracks and provide a uniform height in short time with low material cost in the bump electrode, as shown by Abe.

However, Hatada and Abe fail to disclose a conductive metal coating covering the polymer body.

R.E. Brown et al. disclose a semiconductor device comprising a connection includes a composite bump and a conductive metal (gold) coating covering the composite bump (figs. 6-7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hatada and Abe to prevent the bump from being oxidized and improve the electric contact characteristic.

- Regarding claim 4, Hatada discloses the composite bumps are formed on the IC element i/o pads prior to formation of the connection (fig. 1A).

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- Regarding claims 5-6, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the composite bumps on the substrate i/o pads prior to formation of the connection or to form the composite bumps on both the IC element i/o pads and substrate i/o pads prior to formation of the connection. For instance, Brady et al. (U.S. Pat. 5134460) disclose a composite bumps are formed on the IC element i/o pads prior to formation of the connection (cover fig.)

Additionally, claims 4-6 considered a product-by-process limitations. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Conclusion

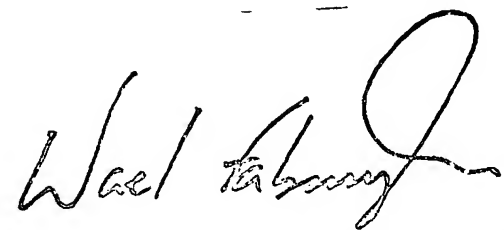
Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (703) 305-6983. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DLN
April 17, 2003

A handwritten signature in black ink, appearing to read "Wael Tabary". The signature is fluid and cursive, with a large loop at the end.

SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2000